3d

The Human Organism

- ✓ **Human Identity**
- ✓ **Human Development**
- ✓ **Basic Functions**
- ✓ **Learning**
- ✓ **Physical Health**
- ✓ **Mental Health**

THE HUMAN ORGANISM - Human Identity
Grade K-2 (Benchmark 1 of 3)

By the end of the 2nd grade all students will know that --

People have different external features, such as the size, shape, and color of hair, skin, and eyes, but they are more like one another than like other animals.

Suggested Activity:

The teacher should cut pictures showing heads, torsos, feet, hands, etc. from magazines. Pictures should be affixed to cards. Children will be given a pile of cards and will sort the cards into various piles - humans, birds, dogs, etc. Children should be asked why they arranged the piles as they did. From this information a list of human, bird, dog characteristics can be listed on the board. Expand this activity to show how people are different in various parts of the world.

Embedded Assessment:	Each child should be able to demonstrate knowledge of characteristics of each category of organism.
Summative Assessment:	Given a new group of cards, the child can easily classify the organism as human or not.
Theme:	Models
Process:	Manipulating Information, esp. developing generalizations

THE HUMAN ORGANISM - Human Identity
Grade K-2 (Benchmark 2 of 3)

By the end of the 2nd grade all students will know that --

People need water, food, air, waste removal, and a particular range of temperatures in their environment, just as other animals do.

Suggested Activity:

Divide class into groups. Each group will be responsible for the care of a classroom animal. Students will care for the animal until spring. In the spring, students will be given a variety of materials that they will use to build an environment in which they could survive. Toy people, animals and plants could be included in the materials.

Embedded Assessment:	**Teacher conferences with group and observes environment to make sure that they have provided for water, food, air, waste removal, and temperature.**
Summative Assessment:	Students construct a suitable environment using concepts gained from animal care.
Theme:	Models
Process:	Proficiency in Making Products

Connect this activity to a study of the school and neighborhood. Ask the class to consider how the school provides for their needs. Assign different aspects (water, food, temperature, exercise) to small groups and investigate within the school. Then visit local establishments to identify how those needs are accommodated in other settings. Returning to the classroom, construct a chart and list the data collected.

THE HUMAN ORGANISM - Human Identity
Grade K-2 (Benchmark 3 of 3)

By the end of the 2nd grade all students will know that --

People tend to live in families and communities in which individuals have different roles.

Suggested Activity:

Teacher generates a discussion of family roles/who does food shopping, laundry, etc. and progresses to discussion of relative's work roles (jobs). Students could explain these roles to others. A list of jobs can be compiled by the teacher. A walking trip to local police, fire and/or water department could be scheduled. Police, fire, postal workers can discuss jobs in the classroom if a field trip is not possible. A community map containing major work sites can be created.

Embedded Assessment:	Interview a community worker and report to the class about the duties of the worker.
Summative Assessment:	**Students can create a model community assigning individuals in the class to various self-designed roles.**
Theme:	Systems
Process:	Manipulating Information, esp. developing generalizations

THE HUMAN ORGANISM - Human Identity
Grade 3-5 (Benchmark 2 of 3)

By the end of the 5th grade all students will know that --

Human beings have made tools and machines to sense and do things that they could not otherwise sense or do at all, or as quickly, or as well.

Suggested Activity:

Students will be asked to make a list of machines, tools that they have at home and use frequently. Students then ask parents and grandparents if those tools were available in their youth and if so how these tools have changed over time. Students should report their findings to the class. Design a tool or a machine from a wooden splint that will make your life easier.

Embedded Assessment:	Children recognize tools and machines that make their lives easier.
Summative Assessment:	**Students explain the statement "necessity is the mother of invention."**
Theme:	Continuity and Change
Process:	Manipulating Information, esp. connecting new information with previous knowledge

By the end of the 5th grade all students will know that --

Artifacts and preserved remains provide some evidence of the physical characteristics and possible behavior of human beings who lived a very long time ago.

Suggested Activity:

Teacher should discuss the nature of archaeology and what an archaeologist does. A field trip to a museum should be scheduled so that students see artifacts. Teacher prepares a mock archaeological dig on school grounds. Students investigate specific area(s) of the site, collect artifacts and classify them (tools, clothing, food, waste, etc.). Students develop scenarios to explain artifacts and their relationship to lifestyle and characteristics of former inhabitants.

Embedded Assessment:	Students can explain what a particular artifact reveals about an ancient culture.
Summative Assessment:	Show tools or instruments from the past (like old kitchen tools) and have children theorize how they were used.
Theme:	Continuity and Change
Process:	Manipulating Information, esp. identifying patterns and relationships

From Marge Bucheit
Graduate School of Oceanograhy
University of Rhode Island
Kingston, Rhode Island

Maya Dig Activity

Through systematic and thorough research, archaeologists have been able to learn about the Maya and their history. This lesson helps students recognize the grid as a useful tool in site reconstruction.

The objectives of the lesson are:

1. *Students will identify and use coordinates on a grid to describe the location of artifacts.*
2. *Students will transfer this knowledge to another class grid to obtain a complete picture of the site.*
3. *Students will engage in data recovery methods specific to archaeology.*
4. *Students will interpret collected data and draw conclusions about the excavated site.*

The materials required for this activity are common and inexpensive. By modifying the lesson, the activity can be adapted to almost any age group.

Students are asked to compare an archaeologist to a detective who must accurately note the smallest details in order to reconstruct a scene. Archaeologists must study a site both vertically and horizontally. One device used to study a site is a grid. The students are told they will be role playing archaeologists and that they will be using a grid to help them reconstruct and label a site. The site chosen is created beforehand to resemble the heart of a home of the ancient Maya.

Students are broken into groups, receive their 'tools' and begin work on their section of the excavation. At the conclusion, the class compares and discusses their findings.

This lesson plan is available from Marge Bucheit at URI. Included are several related activities that deal with dating artifacts.

THE HUMAN ORGANISM - Human Identity
Grade 6-8 (Benchmark 1 of 6)

By the end of the 8th grade all students will know that --

Like other animals, human beings have body systems for obtaining and providing energy, defense, reproduction, and the coordination of body functions.

Suggested Activity:

Each student picks an animal to study (from a teacher list). The student compares one or more body systems of the organism to those same systems in humans, listing similarities and differences. Students must be able to explain similarities and differences in systems for obtaining food, reproducing, etc.

Embedded Assessment:	Student recognizes and explains similarities and differences among systems.
Summative Assessment:	Students are asked to compare and contrast the systems of humans and another organism not previously discussed in class.
Theme:	Systems
Process:	Language Proficiency

By the end of the 8th grade all students will know that --

Human beings have many similarities and differences. The similarities make it possible for human beings to reproduce and to donate blood and organs to one another throughout the world. Their differences provide the ability for adaptive change.

Suggested Activity:

Have students list as many characteristics of humans as possible. Have them discuss how each characteristic may vary within the human population. Have all students stand. Ask every left-handed student to sit. Ask every student under 5 feet to sit. Ask every student with blue eyes to sit. Ask every student who cannot roll their tongue to sit. Class should record data as the activity progresses and discuss its implications.

Embedded Assessment:	Students recognize that humans with common characteristics exhibit variety within the population.
Summative Assessment:	Students are presented with scenarios of cataclysmic events such as global warming, ozone depletion, etc. Students must decide which members of the class will have survival advantages and must explain why these students are better adapted to such a changed environment.
Theme:	Systems
Process:	Developing Explanatory Frameworks, esp. linking concepts and principles

RESOURCE: Have an individual from the RI Blood Bank come and discuss human blood groups and the implications of this differentiation within the human species.

THE HUMAN ORGANISM - Human Identity
Grade 9-12 (Benchmark 1 of 2)

By the end of the 12th grade all students will know that --

The similarity of human DNA sequences and the resulting similarity in cell chemistry and anatomy identify human beings as a single species.

Suggested Activity:

Students are presented with the DNA sequences of a human and four other organisms. The students will determine the percent similarity of the 4 organisms with the human DNA. The identity of the four organisms will be revealed and the students will explore their relationship to humans.

Embedded Assessment:	Students will be able to explain the interrelatedness of human beings.
Summative Assessment:	Students compare the DNA sequences of human, chimpanzee, and other selected organisms and interpret the results for correlation and separation between organisms.
Theme:	Constancy & Change
Process:	Manipulating Information

THE HUMAN ORGANISM - Human Identity
Grade 9-12 (Benchmark 2 of 2)

By the end of the 12th grade all students will know that --

Written records and photographic and electronic devices enable human beings to share, compile, use, and misuse great amounts of information and misinformation. No other species uses such technologies.

Suggested Activity:

Students examine communication and tool use in other species (apes, cetacea, sea otters, bees) and compare with humans.

Embedded Assessment:	Students are able to distinguish unique features of human communication.
Summative Assessment:	Students can relate how human communication systems have evolved over time.
Theme:	Continuity & Change
Process:	Manipulating Information

By the end of the 5th grade all students will know that --

Human beings live longer than most other animals, but all living things die.

Suggested Activity:

Students should pick an animal/plant species from a 'can' and should research the life expectancy of the plant/animal using the library or other resources. Students return to class with information. Students can create charts and graphs showing various life expectancies. This activity is an opportune time to introduce a discussion on death with the aid of a mental health professional.

Embedded Assessment:	Students properly construct graphs/charts which reflect data collected.
Summative Assessment:	Students are asked to predict the general life span of a plant/animal related to (but not) one already mentioned in class.
Theme:	Continuity and Change
Process:	Manipulating Information, esp. interpreting/evaluating data

By the end of the 5th grade all students will know that --

There is a usual sequence of physical and mental development among human beings, although individuals differ in exactly when they learn things.

Suggested Activity:

Students are asked to develop timelines for human events such as walking, talking, or riding a bicycle. Have the children teach younger children a simple skill, such as jumping rope, and then discuss the differences they found in skills and development of the younger children. This might also be a time to discuss mental handicaps like Down's Syndrome, where physical and mental development occur in the same order, but at a different rate.

Students could volunteer service in a K-2 classroom to assist the younger children with various activities.

Students can also determine development by raising the left arm so that the left hand covers the right ear. Students can see that children over seven can do this, while younger students generally cannot.

The PBS series 'Childhood' would be an excellent resource for this activity. The series can be purchased on videotape from PBS Video (1-800-328-7271) for educational insitutions.

Embedded Assessment:	**Students take adequate notes of their observations and transfer the information to their respective timeline.**
Summative Assessment:	**Students are able to describe key elements of their own development through early adolescence.**
Theme:	**Scale**
Process:	**Manipulating Information, esp. developing generalizations**

THE HUMAN ORGANISM - Basic Functions
Grade K-2 (Benchmark 1 of 3)

By the end of 2nd grade all students will know that --

The human body has parts that help it seek, find, and take in food when it feels hunger--eyes and noses for detecting food, legs to get to it, arms to carry it away, and a mouth to eat it.

Suggested Activity:

Students are divided into teams. One team is blindfolded or asked to close their eyes (confined in a clear area), and one team has their hands covered by mittens. Students will be presented with food and non-food items such as orange slices, apple slices, wrapped candy, and tennis balls. Students will be asked to identify the items presented using the senses, including taste.

Embedded Assessment:	Children are asked to describe how they used the sense of smell to find food, used the hands to guide it to the mouth and hands, nose and mouth to determine what the food was.
Summative Assessment:	Students can connect what they learned about humans to a provided example of another species which is not too dissimilar.
Theme:	Systems
Process:	Manipulating Information

By the end of 2nd grade all students will know that --

The brain enables human beings to think and sends messages to other body parts to help them work properly.

Suggested Activity:

Students are divided into teams. Teams are assigned a task to describe such as combing hair, covering a yawn. Students must make an ordered list of activities in combing hair which will be given to the teacher (representing the brain). The teacher follows student directions. Discussion can follow which illustrates 'automatic' activities which do not have to be thought of.

Embedded Assessment:	Students can identify a number of key functions that the brain performs based upon the simulation they have experienced.
Summative Assessment:	Students can describe in simple fashion what has to occur in order for a person to raise their arm, move their leg, or other movement.
Theme:	Systems
Process:	Language Proficiency

By the end of 5th grade all students will know that --

Skin protects the body from harmful substances and other organisms and from drying out.

Suggested Activity:

Start with two tomatoes, remove the skin from one. Have children investigate and compare what happens to both over time.

Small groups of students work with 4 apples. The apples are labeled as A, B, C, and D. Using straight pins, make 4 or 5 holes in apples B and C. Have a group member with unwashed hands rub his or her hands on apples A, B, and C. Apply rubbing alcohol to the punctured areas of apple C. Apple D serves as the control. Leave the apples where they can be observed for 7 days. Each day, observe (but don't touch) and keep track of your observations in a journal. At the end of the seven days, discuss the similarities between apple skin and our skin. Notice the effect of the antiseptic (alcohol) on germ growth.

Invite a dermatologist to visit the classroom. Student groups should be prepared to ask the doctor to discuss different effects of sunlight, topical applications, wound protections and the like, which they have researched prior to the visit.

Embedded Assessment:	Students can correctly record their observations and make simple inferences based on the data.
Summative Assessment:	Students are asked to explain precautions severely burned individuals have to take and what steps might be taken to help them.
Theme:	Systems
Process:	Manipulating Information, esp. inferring

By the end of 12th grade all students will know that --

Reproduction is necessary for the survival of any species. Sexual behavior depends strongly on cultural, personal, and biological factors.

Suggested Activity:

Students will research and write a report on the cultural, personal, and biological factors which affect courtship rituals and mate selection in at least 3 societies (one Eastern, one Western, and one animal species).

Embedded Assessment:	Students will list at least 3 different cultural, personal, biological factors which may affect sexual behavior.
Summative Assessment:	**Students will orally report on the results of their research to the class. Class results will be summarized under the headings of cultural, personal and biological factors. Students will determine which category (if any) has the greatest effect on sexual behavior.**
Theme:	Constancy and Change
Process:	Manipulating Information, esp. developing generalizations

Sociobiological and anthropological resources could be used with this activity, including the work of E.O. Wilson.

THE HUMAN ORGANISM - Learning
Grade K-2 (Benchmark 1 of 3)

By the end of 2nd grade all students will know that --

People use their senses to find out about their surroundings and themselves. Different senses give different information. Sometimes a person can get different information about the same thing by moving closer to it or further away from it.

Suggested Activity:

Any study of the five senses should include recognition of the handicapped. Teacher will generate a variety of activities which cause students to make judgments using their senses. Activities could include listening to tapes of a variety of sounds for student identification. Students place hands in 'feelie' boxes (shoeboxes containing a variety of objects) and try to identify the objects. Focus on an object in the environment (a tree, telephone pole, building) and make observations from increasingly close distances, finally using a magnifying glass.

Embedded Assessment:	Students can verbalize their experiences using a variety of descriptors.
Summative Assessment:	Using a common insect or pet, ask students to explain the manner in which it employs its varied senses.
Theme:	Systems
Process:	Developing Explanatory Frameworks, esp. linking conceptual principles

THE HUMAN ORGANISM - Learning
Grade K-2 (Benchmark 2 of 3)

By the end of 2nd grade all students will know that --

Some of the things people do, like playing soccer, reading, and writing, must be deliberately learned. Practicing helps people to improve. How well one learns sometimes depends on how one does it and how often and how hard one tries to learn.

Suggested Activity:

Teacher creates a paper or physical maze. Students are asked to find their way through the maze several times. They are then asked to relate how difficult/easy it was after several trials.

Embedded Assessment:	Each student can successfully 'navigate' the maze.
Summative Assessment:	Have students teach each other or younger children some simple skill or activity.
Theme:	
Process:	Foundational Habits, esp. reflecting

Take a field trip to the 'Green Animals' maze in Portsmouth, RI. Invite the music teacher to the class to talk about the value of practice in learning.

THE HUMAN ORGANISM - Learning
Grade K-2 (Benchmark 3 of 3)

By the end of 2nd grade all students will know that --

People can learn from each other by telling and listening, showing and watching, and imitating what others do.

Suggested Activity:

Demonstrate a card trick or a simple magic trick. Students are asked what they think happened. Teacher can explain the trick and have the students try to repeat it. Teacher demonstrates/explains again and students repeat once more.

Embedded Assessment:	Students develop some proficiency with the given trick and can make a generalizable statement of their experience.
Summative Assessment:	Each student can present an activity to another student and tutor them until they achieve some measure of success.
Theme:	
Process:	Manipulating Information, esp. developing generalizations

By the end of 5th grade all students will know that --

Human beings have different interests, motivations, skills, and talents.

Suggested Activity:

Make a personal 'coat-of-arms; showing personal interests, skills, talents, aspirations with an accompanying explanation describing areas and color use. Coats of arms can be exchanged and interpreted by others. Discussion should follow about the importance and value of the goals and aspirations of students.

Higgins Armory Museum in Worcester, MA is an excellent resource for the use and making of coats of arms.

Embedded Assessment:	Students can describe for their peers the significance of the emblems they have placed on their personal coat-of-arms.
Summative Assessment:	**Students can interview a person within the school, family or neighborhood in regard to their interests, motivation, skills and talents, and compare the results to themselves.**
Theme:	
Process:	Manipulating Information, developing generalizations

By the end of 8th grade all students will know that --

Differences in the behavior of individuals arise from the interaction of heredity and experience--the effect of each depends on what the other is. Even instinctive behavior may not develop well if the individual is exposed to abnormal conditions.

Suggested Activity:

Two classes who normally use the same classroom at different times can be brought together for one period, or a classroom could have 1/3 of the seats removed before the normal population enters. No extra chairs, benches, etc. are to be added to the room and no students can leave to work elsewhere. Students will be given a writing task designed to last 15 minutes. Students will complete the assignment and pass it in to the teacher. After the writing assignment, students will be asked to write how they felt being physically crowded, lacking seats, peace, quiet, etc.

Embedded Assessment:	Students realize that overcrowding and change of routine can have many effects on human behavior.
Summative Assessment:	Students must write a short report about overcrowding in an animal species and must describe the possible effects of overcrowding on socialization, attitude, mating behavior, etc.
Theme:	Constancy and Change
Process:	Manipulating Information, esp. interpreting/evaluating data

By the end of 12th grade all students will know that --

The expectations, moods, and prior experiences of human beings can affect how they interpret new perceptions or ideas. People tend to ignore evidence that challenges their beliefs and to accept evidence that supports them. The context in which something is learned may limit the contexts in which the learning can be used.

Suggested Activity:

A group of pictures (from newspapers, magazines, etc.) can be presented to cooperative groups. Students will be asked to sort the pictures into occupational groups - elementary school teachers, scientists, musicians. The teacher will have a key to identify pictures with actual occupations. After 15 minutes students will be asked to listen to the answers, reasons given by a group. Then each group will be given a point for each picture/occupation properly correlated. Class discussion can then follow about stereotyping, gender bias, prejudice towards young, old, etc.

Embedded Assessment:	Students sort pictures based on some type of collective reasoning, trying to match **appearance with occupation.**
Summative Assessment:	Students can explain how prior misconceptions about individuals, based solely on appearance, can affect perception and judgment.
Theme:	Continuity and Change
Process:	Manipulating Information, esp. inferring

Compare the astrological signs of the students with the actual constellations in the sky at the time of their birth. Have students keep a journal of daily horoscopes which they compare, ex post facto, with daily horoscopes in the newspaper and actual events. Have them draw conclusions after a month of such data collection.

THE HUMAN ORGANISM - Physical Health
Grade K-2 (Benchmark 1 of 3)

By the end of 2nd grade all students will know that --

Eating a variety of healthful foods and getting enough exercise and rest help people to stay healthy.

Suggested Activity:

Group makes a food pyramid. Student groups work on different sections of the pyramid, cutting pictures from magazines and pasting. Develop healthy menus. Prepare a healthy breakfast or lunch as a group. Students try to bring 'healthier' lunches or snacks to school for a week.

Embedded Assessment:	**Students often tire as the day progresses. Students can do 10 jumping jacks in the morning, timed by the teacher. The same activity is done and timed in the afternoon. Students discuss how they felt and the difference (if any) in times.**
Summative Assessment:	Pick out healthy meals from pictures of several meals.
Theme:	Models
Process:	Developing Explanatory Frameworks, esp. linking concepts/principles

THE HUMAN ORGANISM Physical Health
Grade K-2 (Benchmark 3 of 3)

By the end of 2nd grade all students will know that --

Some diseases are caused by germs, some are not. Diseases caused by germs may be spread by people who have them. Washing one's hands with soap and water reduces the number of germs that can get into the body or that can be passed on to other people.

Suggested Activity:

Put a small amount of mentholated shaving creme in your hand and shake hands with one student, who shakes hands with another, until everyone has shaken hands with someone. Though the sight and the feel of the shaving creme will probably disappear along the way, the last child should still have some of this 'germ' since they can still smell the creme. This could be expanded in a variety of ways. The teacher should point out to children that germ transmission from mouth to hand to doorknobs is documented as the #1 method of transmission of infectious agents.

Embedded Assessment:	Students can correctly deduce what the activity demonstrates.
Summative Assessment:	Present students with a series of very different scenarios and ask them to identify when washing their hands is important.
Theme:	Systems
Process:	Manipulating Information, esp. connecting new information with previous knowledge

This activity directly relates to State Health Outcomes. This is a good opportunity for the health educator and science educator to work together.

THE HUMAN ORGANISM - Physical Health
Grade 3-5 (Benchmark 1 of 4)

By the end of 5th grade all students will know that --

Food provides energy and materials for growth and repair of body parts. Vitamins and minerals, present in small amounts in foods, are essential to keep everything working well. As people grow up, the amounts and kinds of food and exercise needed by the body may change.

Suggested Activity:

Have the children make charts showing recommended amounts and kinds of foods for different ages - babies, youngsters, teens, adults, and the elderly. Have them record their activities and individual menus for 7 days. Students will then be asked to determine if they felt that they had eaten the recommended amounts, why or why not. Students could also be asked to add vitamin/mineral records to their food diaries. Samples of cereal boxes could be brought in to examine vitamin contents. Tables of vitamin contents of meal items could be examined by teams.

Embedded Assessment:	Students can correlate their food intake with recommended daily amounts of basic food groups.
Summative Assessment:	**Presented with sample meals from the school cafeteria menu and a local restaurant, students can determine the degree to which each meets daily requirements.**
Theme:	Systems
Process:	Manipulating Information, esp. intergrating/evaluating data

Invite a nutrionist or an adult on a special diet to visit the class.

All benchmarks in this document are based on Benchmarks for Science Literacy - Project 2061 published by the American Association for the Advancement of Science. Reprinted with permission.

By the end of 5th grade all students will know that --

Tobacco, alcohol, other drugs, and certain poisons in the environment (pesticides, lead) can harm human beings and other living things.

Suggested Activity:

Speakers from high school, college or anti-drug programs can make excellent presentations for the students.

Contact Peter DiGiulio (508-741-2684) for an extremely effective drug education approach (*Why Say No!*). The Gold Key Honor Society (Best of America Program) also provides speakers. Ask local college students to speak with students about drugs and alcohol abuse.

Embedded Assessment:	Students can describe key points derived from a guest speaker.
Summative Assessment:	Create a fictitious world where water and several other common substances on earth are dangerous drugs or poisons and have students describe how the inhabitants would cope with a visit to Earth.
Theme:	Systems
Process:	Proficiency in Informed Action

THE HUMAN ORGANISM - Physical Health
Grade 3-5 (Benchmark 4 of 4)

By the end of 5th grade all students will know that --

There are some diseases that human beings can catch only once. After they've recovered they don't get sick from them again. There are many diseases that can be prevented by vaccination, so that people don't catch them even once.

Suggested Activity:

The teacher discusses 'diseases of the past' such as polio, measles, mumps, whooping cough. Students ask parents and grandparents about these diseases and the development of vaccines. Students report back to the class.

Embedded Assessment:	Students can describe accurately the key features and effects (biological, social, economic, etc.) of a given disease whose presence within society was a challenge faced by their ancestors or other elderly citizens.
Summative Assessment:	Have students pretend they are 70 years of age. Ask them to write an essay responding to several questions about AIDS or another common disease of the present and its input on their life and/or community.
Theme:	Constancy and Change
Process:	Language Proficiency, esp. interviewing

From Dr. Mary Louise Greeley
Salve Regina University
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Middle School Activity

Careers in Medical Technology

The 8th grade biology class of the Pennfield School in Portsmouth, Rhode Island, was invited to visit the Biology and Biomedical Sciences Department at Salve Regina University. Dr. Greeley and the medical technology, cytotechnology and pre-physical therapy majors at the University took their visitors through a simulated visit to a hospital emergency room. One of the medical technology students posed as a patient, stating that she had a pain in her lower right side. Another Salve student played the role of the doctor, came in and ordered a CBC (Complete Blood Count) and urinalysis. Dr. Greeley then explained what the medical technologist can learn from the CBC and urinalysis.

All the students went on to view normal and abnormal blood slides on the biology department's microscope color video system. The Pennfield students were paired with Salve Regina students who showed them how to do a urinalysis (with simulated urine) and examined prepared blood smears with their own individual microscopes.

Dr. Greeley discussed opportunties and requirements for careers in medical technology, cytotechnology and physical therapy. The Salve Regina students passed out brochures on these biomedical careers and discussed what interested them most in their studies and the reasons they had chosen to enter these professions.

By the end of 12th grade all students will know that --

Faulty genes can cause body parts or systems to work poorly. Some genetic diseases appear only when an individual has inherited a certain faulty gene from both parents.

Suggested Activity:

Each student will be presented with a diagram of a family tree which shows the appearance of a genetically inherited disease (such as Queen Victoria - hemophilia). Students should trace the disease through specific individuals, highlighting the path. Students should decide which family individuals were carriers of one copy of the gene and which carried two copies.

Embedded Assessment:	Students are able to successfully determine which family members contain none, one, or two genes for the specific condition/disease.
Summative Assessment:	**Students are presented with a worksheet containing a family tree format and a descriptive paragraph. Having only the hypothetical parents listed and how many siblings produced for each generation, students should create a family tree including spouses indicating non-carriers, carriers and those affected by the disease. Family tree should accurately reflect paragraph given and choices made by students.**
Theme:	**Models, systems**
Process:	**Manipulating Information, esp. interpreting/evaluating data**

THE HUMAN ORGANISM - Physical Health
Grade 9-12 (Benchmark 4 of 4)

By the end of 12th grade all students will know that --

Some viral diseases, such as AIDS, destroy critical cells of the immune system, leaving the body unable to deal with multiple infection agents and cancerous cells.

Suggested Activity:

Lecture/discussion of the functioning of the immune system and how it is affected by HIV; possibly show video on AIDS, speaker from AIDS support group. Read and discuss "Hot House" by Preston, discuss Ebola.

Embedded Assessment:	Students will diagram a model of how HIV infects the immune system
Summative Assessment:	Students will explain the relationship between HIV and AIDS.
Theme:	Systems
Process:	Developing Explanatory Frameworks, esp. linking concepts/principles

Collect current data on the effects of the Ebola virus, not only on victims but also on travel restrictions, programs at CDC (Atlanta), World Health Organization. In groups, students will develop a plan for curtailing the spread of the Ebola virus. Include medical prevention strategies, information dissemination. Invite local medical personnel (technicians, nurses, doctors) to act as resources at the presentation of these oral/visual plans by groups. Also rely on your school health educator.